01-18-00   A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BOX PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D. C. 20231

FILING UNDER 37 CFR § 1.53(b)

This is a request for filing for a

☒ continuation   ☐ divisional   ☐ continuation-in-part (CIP)

application under 37 CFR § 1.53(b) of pending prior application Serial No. 08/306,650 filed on September 14, 1994, which is a continuation of application Serial No. 08/058,452 filed on May 7, 1993, now U.S. Patent No. 5,359,645, which is a continuation of application Serial No. 07/680,879 filed on April 5, 1991, now U.S. Patent No. 5,224,153, which is a continuation-in-part of application Serial No. 07/481,403 filed on February 20, 1990, now U.S. Patent No. 5,014,298, which is a continuation-in-part of application Serial No. 07/312,792 filed on February 21, 1989, now U.S. Patent No. 5,073,929, which is a continuation-in-part of application Serial No. 07/194,258 filed on May 16, 1988, now U.S. Patent No. 4,845,739, which is a continuation-in-part of application Serial No. 07/018,244 filed on February 24, 1987, now U.S. Patent No. 4,792,968, which is a continuation-in-part of application Serial No. 06/753,299 filed on July 10, 1985, now abandoned;

Also said application Serial No. 08/306,456 is directly a continuation-in-part of Application Serial No. 07/335,923 filed on April 10, 1989, which is a continuation of Application Serial No. 07/194,258 filed on May 16, 1988, now U.S. Patent No. 4,845,739, which is a continuation-in-part of Application Serial No. 07/018,244 filed on February 24, 1987, now U.S. Patent No. 4,792,968, which is a continuation-in-part of Application Serial No. 06/753,299 filed on July 10, 1985, now abandoned,. The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. § 120, by
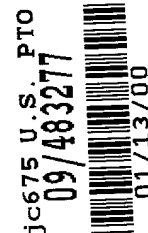
LA-126724.1

RONALD A. KATZ, entitled:

VOICE-DATA TELEPHONIC INTERFACE CONTROL SYSTEM

For CONTINUATION or DIVISION APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied, referenced above, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

I.   APPLICATION ELEMENTS ENCLOSED

<u>30</u>   Page(s) of Written Description

<u>7</u>   Page(s) of Claims

<u>1</u>   Page(s) of Abstract

<u>3</u>   Sheet(s) of Drawings   ☐ formal   ☒ informal

<u>3</u>   Page(s) of ☒ Declaration or ☐ Declaration and Power of Attorney

        ☒   Copy from prior application [37 CFR §1.63(d)]

        ☐   Newly executed

<u>2</u>   Page(s) of Power of Attorney by Assignee from Aldo Tesi

<u>2</u>   Page(s) of Power of Attorney by Assignee from Ronald A. Katz

<u>2</u>   Page(s) of subsequent Revocation and Grant of Power of Attorney

☐   Assignment papers (cover sheet and documents(s))

☐   An Information Disclosure Statement, PTO 1449, ☐ with copies of cited items.

☐   A Verified Statement to establish small entity under 37 CFR §§ 1.9 and 1.27: ☐ Is attached. ☐ Has been filed in the prior application and such status is still proper and desired. [37 CFR § 1.28(a)]

II.   FEE CALCULATION

BASIC FILING FEE:								$690.00
Total Claims	25	-	20	=	5	x	$18.00	$90.00
Independent Claims	25	-	3	=	22	x	$78.00	$1,716.00
Multiple Dependent Claims	$260	(if applicable)				☐		$0.00
TOTAL OF ABOVE CALCULATIONS								$2,496.00
Reduction by ½ for Filing by Small Entity. Note 37 CFR §§ 1.9, 1.27, 1.28. If applicable, Verified Statement must be attached. ☐								$0.00
Misc. Filing Fees (Recordation of Assignment)								$0.00
TOTAL FEES DUE HEREWITH								$2,496.00

III. PRIORITY - 35 USC § 119

☐   Priority of application Serial No. _____ filed on _____ in _____ is claimed under 35 USC § 119.

☐   The certified copy has been filed in prior U.S. application Serial No. _____ on _____.

☐   The certified copy will follow.

IV. AMENDMENTS

☒   Cancel in this application original Claims 2-21 of the prior application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes if no new claims are added in a preliminary amendment.)

☒   A Preliminary Amendment is enclosed. (Claims added by Amendment must be numbered consecutively beginning with the number next following the highest numbered original claim in the prior application.)

V. RELATE BACK - 35 USC § 120

☐   Relate back information included in preliminary amendment or specification.

☒   Please amend the specification as follows: On page 1, delete lines 5-21 and insert as follows:

--This application is a continuation of application Serial No. 08/306,650 filed on September 14, 1994, which is a continuation of application Serial No. 08/058,452 filed on May 7, 1993, now U.S. Patent No. 5,359,645, which is a continuation of application Serial No. 07/680,879 filed on April 5, 1991, now U.S. Patent No. 5,224,153, which is a continuation-in-part of application Serial No. 07/481,403 filed on February 20, 1990, now U.S. Patent No. 5,014,298, which is a continuation-in-part of application Serial No. 07/312,792 filed on February 21, 1989, now U.S. Patent No. 5,073,929, which is a continuation-in-part of application Serial No. 07/194,258 filed on May 16, 1988, now U.S. Patent No. 4,845,739, which is a continuation-in-part of application Serial No. 07/018,244 filed on February 24, 1987, now U.S. Patent No. 4,792,968, which is a continuation-in-part of application Serial No. 06/753,299 filed on July 10, 1985, now abandoned.

Also said application Serial No. 08/306,456 is directly a continuation-in-part of Application Serial No. 07/335,923 filed on April 10, 1989, which is a continuation of Application Serial No. 07/194,258 filed on May 16, 1988, now U.S. Patent No. 4,845,739, which is a continuation-in-part of Application Serial No. 07/018,244 filed on February 24, 1987, now U.S. Patent No. 4,792,968, which is a continuation-in-part of Application Serial No. 06/753,299 filed on July 10, 1985, now abandoned,. The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. § 120.--

☒   With respect to the prior co-pending U.S. application from which this application claims benefit under 35 USC § 120, the inventor(s) in this application is (are) [37 CFR 1.53(b)(1)]:

☒   the same.

☐   less than those named in the prior application and it is requested that the following inventor(s) identified above for the prior application be deleted [see 37 CFR §§1.33(b) AND 1.63(d)(2)]:

[Name(s) of inventor(s) to be deleted]

VI.   FEE PAYMENT BEING MADE AT THIS TIME

☐   Not attached. No filing fee is submitted. [This and the surcharge required by 37 CFR § 1.16(e) can be paid subsequently.]

☒   Attached.

     ☒   Filing fees. $2,496.00

     ☐   Recording assignment. [$40.00 37 CFR § 1.21(h)(1)]   —

     ☐   Petition fee for filing by other than all the inventors or person on behalf of the inventor where inventor refused to sign or cannot be reached. [$130.00; 37 CFR §§ 1.47 and 1.17(h)]

     ☐   Petition fee to Suspend Prosecution for the Time Necessary to File an Amendment (New Application Filed Concurrently.) [$130.00; 37 CFR §§ 1.103 and 1.17(i)]   —

     ☐   For processing an application with a specification in a non-English language. [$130.00; 37 CFR §§ 1.52(d) and 1.17(k)]   —

     ☐   Processing and retention fee. [$130.00; 37 CFR §§ 1.53(f) and 1.21(l)]   —

                              Total Fees Enclosed $2,496.00

VII.   METHOD OF PAYMENT OF FEES

☐   Attached is a check in the amount of _____.

☒   Charge Lyon & Lyon's Deposit Account No. **12-2475** in the amount of $2,496.00.

VIII.   AUTHORIZATION TO CHARGE ADDITIONAL FEES

The Commissioner is hereby authorized to credit Lyon & Lyon's Deposit Account No. **12-2475** for any over payment of fees and to charge the following additional fees by this paper and during the entire pendency of this application to Deposit Account No. **12-2475**:

☒   37 CFR § 1.16 (Filing fees and excess claims fees)

☒   37 CFR § 1.17 (Application processing fees)

☐   37 CFR § 1.18 (Issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR § 1.311(b))

☐   37 CFR § 1.21 (Assignment recordation fees)

IX. POWER OF ATTORNEY & CORRESPONDENCE ADDRESS

☒ The power appears in the original papers in the prior application.

☐ The power does not appear in the original papers, but was filed on _____ in prior application Serial No. _____.

☐ A new power has been executed and is attached.

Please send all correspondence to Customer Number 22249:

22249

PATENT TRADEMARK OFFICE

LYON & LYON LLP
Suite 4700
633 W. Fifth Street
Los Angeles, CA 90071

Please direct all inquiries to Reena Kuyper, at (213) 489-1600.

X. MAINTENANCE OF CO-PENDENCY OF PRIOR APPLICATION

☐ A petition, fee and response has been filed to extend the term in the pending **prior** application until _____. A copy of the petition for extension of time in the **prior** application is attached.

☐ A conditional petition for extension of time is being filed in the pending **prior** application. A copy of the conditional petition for extension of time in the **prior** application is attached.

XI. ABANDONMENT OF PRIOR APPLICATION
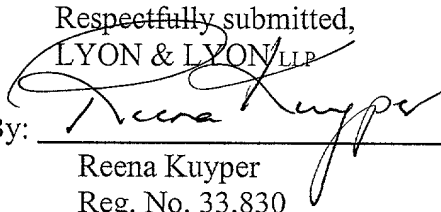
☐ Please abandon the prior application at a time while the prior application is pending or when the petition for extension of time or to revive in that application is granted and when this application is granted a filing date so as to make this application co-pending with said prior application. At the same time, please add the words "now abandoned" to the amendment of the specification set forth in Item V above.

Respectfully submitted,

LYON & LYON LLP

Dated: January 13, 2000

By: _____
Reena Kuyper
Reg. No. 33,830

Enclosures
Ronald A. Katz Technology Licensing, L.P.
Name of Assignee

9200 Sunset Boulevard, Suite 1005, Los Angeles, California 90069
Address of Assignee

Assignment recorded in PTO on September 26, 1994, Reel 7133, Frame 090-100

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:)	Group Art Unit [Parent Case]: 2743
)	
Ronald A. KATZ)	Examiner [Parent Case]: Woo, Stella
)	
Serial No. Not Yet Assigned)	
)	
Filed: Herewith)	
)	
For: VOICE-DATA TELEPHONIC)	
INTERFACE CONTROL SYSTEM)	

PRELIMINARY AMENDMENT

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C.   20231

Sir:

      Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:
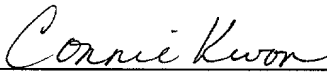
      Please add claims 22-46 as follows and cancel claim 1, without prejudice.

      22.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said control system comprising:

CERTIFICATE OF MAILING (37 C.F.R. §1.10)

I hereby certify that this paper (along with any referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as 'Express Mail Post Office To Addressee' (Label No. EL360206265US) in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

January 13, 2000
_____
Date of Deposit

_____
Connie Kwon

LA-126725.1

receiving means for receiving caller number identification signals from said communication facility indicative of caller number identification data;

cue means for cueing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals and caller number identification signals automatically provided by said communication facility for substantially all said select ones of said remote terminals as (1) digital control signals, (2) digital data signals, or (3) audio signals, wherein at least one of said responsive signals or at least a portion of said caller number identification signals can serve as a digital control signal, a digital data signal, or both;

control means for actuating said cue means and said status means to cue and identify responsive signals in relation to said selective operation prompted by said cue means; and

means for storing audio signals encoded in a digital format, said encoded audio signals including caller voice data responsive to cuing by said cue means under control of said status means.

23.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals from each select remote terminal as 1) digital control signals, 2) digital data signals, or 3) audio signals, wherein a responsive signal can serve as a digital control signal, a digital data signal, or both;

memory means for storing data relating to said individual callers including data as provided by said digital data signals or said audio signals or both where at least certain of such storage occurs as a result of a call and previously stored record data;

means for addressing said data relating to said individual callers in said memory means in response to said digital control signals from said digital input means;

control means for actuating said cue means and said status means to cue and identify said responsive signals in relation to said selective operation prompted by said cue means; and

means for storing said audio signals for reproducing caller audio data responsive to cuing by said cue means under control of said status means, certain of said audio signals stored for first time individual callers.

24.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio response signals and digital input means for providing digital response signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective actuation of said voice communication means and said digital input means to provide response signals;

status means to selectively identify response signals from each select remote terminal as (1) digital control signals, (2) digital data signals, or (3) audio signals, wherein a response signal can serve as a digital control signal, a digital data signal, or both;

memory means for storing data relating to said individual callers including data as provided by said digital data signals or said audio signals or both, where at least part of such storage occurs as a result of a call and previously stored record data;

means for addressing said data relating to said individual callers from said memory means in response to said digital response signals from said digital input means;

control means for actuating said cue means and said status means to cue and identify said response signals in relation to said selective actuation prompted by said cue means;

means for storing said audio signals representative of caller audio data in said memory means responsive to cuing by said cue means; and

interface processor means including means to isolate a subset of said individual callers based upon digital data received from a plurality of said individual callers.

25.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio signals and digital input means for providing digital signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals and caller number identification signals for substantially all of said select ones of said remote terminals as (1) digital control signals, (2) digital data signals, or (3) audio signals, wherein certain of said responsive signals can serve as digital control signals, digital data signals, or both;

test means for testing certain data relating to said individual callers for approval, as provided by one or both of said digital control signals or said digital data signals, or testing for the presence of certain data relating to said individual callers, as provided by said audio signals;

control means for receiving said digital control signals including said caller number identification signals indicative of at least a portion of a caller's number to actuate said test means, said cue means and said status means in accordance with a predetermined program, said caller number identification signals used to test and control for a use limit; and

means for storing data relating to said individual callers as received under control of said control means implementing said program.

26.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio signals and digital input means for providing digital signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals, wherein certain of said responsive signals can serve as digital control signals, digital data signals, or both, said communication facility providing caller number identification signals indicative of at least a portion of a caller's number and said status means selectively identifying said caller number identification signals as digital control signals or digital data signals, or both;

control means for receiving said digital control signals for actuating said cue means and said status means to cue and identify said responsive signals in relation to said selective operation prompted by said cue means; and

means for storing and addressing data relating to said individual callers, including said audio signals for reproducing caller audio data at a remote terminal.

27.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said control system comprising:

receiving means for receiving caller number identification signals indicative of at least a portion of a caller's number from said communication facility;

cue means for cuing select ones of said remote terminals to prompt selective actuation of said voice communication means and said digital input means to provide responsive signals;

status means to selectively identify responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals, wherein certain of said responsive signals can serve as digital control signals, digital data signals, or both, said communication facility providing said caller number identification signals indicative of at least a portion of a caller's number and said status means selectively

identifying said caller number identification signals as digital control signals or digital data signals, or both;

test means for testing identification data provided by said individual callers represented by certain of said responsive signals for approval;

control means for implementing a stored program to control said cue means and said status means in accordance with said program and said digital control signals to prompt said responsive signals from each select remote terminal in accordance with said status means, said program implementing an interface communication operation; and

means for selectively storing said responsive signals from said select remote terminals including digital data signals and audio signals as selectively identified by said status means to indicate at least in part said identification data and for processing certain data provided by said individual callers represented by at least certain of said digital data signals.

28.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital response responsive signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective actuation of said voice communication means and said digital input means to provide responsive signals;

status means to selectively identify responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals wherein certain of said responsive signals can serve as digital data signals, digital control signals, or both;

test means for testing identification data relating to said individual callers represented by certain of said responsive signals for approval, wherein said test means recognizes a first time caller;

control means implementing a stored program to control   said cue means and said status means in accordance with said program and said digital control signals, to

prompt said responsive signals from each select remote terminal in accordance with said status means; and

means for selectively storing said responsive signals from said select remote terminal including digital data signals and audio signals as selectively identified by said status means to indicate data provided by said individual callers.

29. A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio signals and digital input means for providing digital signals, said system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals;

testing means for testing certain data relating to said individual callers for approval, as provided by said digital data signals or said digital control signals or both, or testing for the presence of certain data relating to said individual callers, as provided by said audio signals;

control means for receiving said digital control signals for actuating said cue means and said status means to cue and identify responsive signals in relation to operation selectively prompted by said cue means, wherein said control means further provides an acknowledgment number to certain of said individual callers, said acknowledgment number stored to identify data relating to certain of said individual callers including said audio signals; and

memory means for storing and retrieving said data relating to said individual callers including said acknowledgement data, and including said audio signals encoded in digital format for reproducing caller audio data at a remote terminal, said memory means also for storing data representative of caller billing information on said individual callers and certain of said digital data signals from said digital input means as additional caller data.

30.   A voice-data control system for use with a communication facility including remote terminals for individual callers wherein said remote terminals include voice communication means for providing audio response signals and digital input means for providing digital response signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective actuation of said voice communication means and said digital input means to provide response signals;

status means to selectively identify said response signals from said select ones of said remote terminals as digital response signals or audio response signals wherein said digital response signals include digital control signals or digital data signals or both;

test means for testing identification data for said individual callers for approval, as provided by at least certain of said digital response signals;

control means implementing a stored program to control said cue means and said status means in accordance with said program and said digital control signals to prompt the provision of response signals from said select ones of said remote terminals in accordance with said status means;

means for storing and reproducing response signals from said select ones of said remote terminals including digital data signals and audio response signals as selectively identified by said status means; and

qualification means to qualify callers with respect to a predetermined limit on use.

31.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio signals and digital input means for providing digital signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operations of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals, or (3) audio signals, said communication facility providing caller number identification signals indicative of at

least a portion of a caller's number and said status means selectively identifying said caller number identification signals or certain of said responsive signals or both as digital data signals or said digital control signals or both;

test means for testing identification data for said individual callers represented by certain of said responsive signals for approval;

control means for receiving said digital control signals for actuating said cue means and said status means to cue and identify responsive signals in relation to said selective operation prompted by said cue means; and

means for storing and addressing data relating to said individual callers, including certain of said digital control signals or said digital data signals or said audio signals, wherein at least certain of said audio signals are encoded in a digital format and reproduced as caller audio data at a remote terminal, said means for storing also storing signals representative of caller billing information including caller provided credit card data and expiration date data.

32.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective actuation of said voice communication means and said digital input means to provide responsive signals;

status means to selectively identify responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals wherein certain of said responsive signals can serve as digital control signals, digital data signals, or both;

means for testing for the presence of audio signals for an individual caller and upon determination of no audio signals for said individual caller, requesting audio data from said individual caller for storing;

memory means for storing data relating to said individual callers as provided by said digital data signals, said digital control signals or said audio signals and previously stored recorded data;

means for addressing said data in said memory means in response to control signals from said digital input means;

control means for actuating said cue means and said status means to cue and identify responsive signals in relation to said selective actuation prompted by said cue means, wherein said control means further provides an acknowledgment number to certain of said individual callers, said acknowledgment number stored to identify data relating to certain of said individual callers including said audio signals; and

means for storing said audio signals encoded in a digital format representative of caller audio data responsive to cuing by said cue means.

33. A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio signals and digital input means for providing digital signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals wherein certain of said responsive signals can serve as digital control signals, digital data signals, or both;

control means for receiving said digital control signals for actuating said cue means and said status means to cue and identify said responsive signals in relation to the operation selectively prompted by said cue means;

means for storing and addressing data relating to said individual callers, including said audio signals for reproducing caller audio data at a remote terminal;

a plurality of audio response units for interfacing said control means to said communication facility, wherein said communication facility provides caller number

identification signals indicative of at least a portion of a caller's number and said status means selectively identifies said caller number identification signals as digital data signals, digital control signals, or both, at least said portion of said caller's number also stored in said means for storing; and

acknowledgement means for generating an acknowledgement number and providing said acknowledgement number to said individual callers and storing said acknowledgement number associated with at least certain of said data relating to said individual callers including said caller audio data;

an autodialer to facilitate a connection with a certain one of said remote terminals in accordance with telephone numbers stored as part of said data provided by said individual callers; and

coupling means through which said caller audio data is reproduced at a remote terminal.

34.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio signals and digital input means for providing digital signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective operation of said voice communication means and said digital input means at said remote terminals to provide responsive signals;

status means to selectively indicate responsive signals from each select remote terminal as 1) digital control signals, 2) digital data signals, or 3) audio signals wherein certain of said responsive signals can serve as digital control signals, digital data signals, or both;

means for testing caller identification data for said individual callers for approval as provided by said digital control signals or said digital data signals or both or for testing said caller identification data to determine the presence of said audio signals;

means for storing caller audio data encoded in a digital format;

receiving means for receiving caller number identification signals from said

communication facility indicative of at least a portion of a caller's number as digital data

signals, digital control signals, or both;

memory means for storing said caller number identification signals wherein data

cells of said memory means are loaded in accordance with an operating format, said

operating format being one of a multiple format configuration stored in said memory

means, billing data with respect to said individual callers and a flag to indicate the

presence of audio data also stored in said memory means;

an autodialer to facilitate a connection with a certain one of said remote terminals

in accordance with telephone numbers stored as part of said data provided by said

individual callers; and

coupling means through which said caller audio data is provided to a remote

terminal.

35.   A voice-data control system for use with a communication facility including

remote terminals for individual callers, wherein said remote terminals include voice

communication means for providing audio responsive signals and digital input means for

providing digital responsive signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective

actuation of said voice communication means and said digital input means to provide

responsive signals;

status means to selectively identify responsive signals from each select remote

terminal as (1) digital control signals, (2) digital data signals or (3) audio signals wherein

certain of said responsive signals can serve as digital control signals, digital data signals,

or both, said communication facility providing caller number identification signals

indicative of at least a portion of a caller's number and said status means selectively

identifying said caller number identification signals as digital control signals or digital

data signals, or both;

control means implementing a stored program to control   said cue means and

said status means in accordance with said program and said digital control signals, to

prompt responsive signals from each select remote terminal in accordance with said status means;

memory means for selectively storing at least certain of said responsive signals from said select remote terminal including digital data signals and audio signals as selectively identified by said status means to indicate data provided by said individual callers; and

test means for testing to determine if a caller is a first time caller, said test means cueing said first time caller to provide caller audio data for encoding in a digital format and storing in said memory means.

36.   A method for controlling voice-data communications in an information service format for a plurality of individual callers, said method for use with a communication facility including remote terminals for use by certain of said plurality of individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said method comprising the steps of:

cuing said certain of said individual callers to provide responsive signals indicative of caller data by actuating said voice communication means or said digital input means of said remote terminals;

selectively identifying said responsive signals provided by said certain of said individual callers as digital data signals, digital control signals or audio signals;

testing to determine if audio data is previously stored;

fetching said audio data encoded in said digital format if previously stored;

recording said caller data from said certain of said individual callers including said audio data in a digital format for first time individual callers if not previously stored; and

processing at least said caller data including said audio data to isolate a subset including individual callers.

37.   A method for controlling voice-data communications in accordance with an interface format, said method for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for

providing audio response signals and digital input means for providing digital response signals, said method comprising the steps of:

cuing select ones of said remote terminals to prompt selective actuation by said individual callers of said voice communication means and said digital input means to provide response signals indicative of caller data including audio data;

initially testing for the presence of said audio data in an encoded digital format to determine if previously recorded and for providing access to certain operations of said interface format upon consideration of the presence of said audio data;

recording at least certain of said audio data in said encoded digital format if not previously recorded; and

providing acknowledgment numbers to at least certain of said individual callers and recording said acknowledgement numbers to identify said at least certain of said caller data including said audio data recorded in said encoded format.

38.   A method for controlling voice-data communications for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said method comprising the steps of:

cuing select ones of said remote terminals to prompt selective actuation by said individual callers of said voice communication means and said digital input means to provide responsive signals;

selectively identifying said responsive signals from said select ones of said remote terminals as digital data signals, digital control signals or audio signals, said responsive signals including a customer identification number for a caller to access a file for said caller;

recording said audio signals in digital format;

testing said digital data signals for approval or testing said digital data signals to determine the presence of said audio signals; and

providing an acknowledgment number to certain of said individual callers, said acknowledgment number stored to identify data relating to certain of said individual callers including said audio signals.

39.   A method for controlling voice-data communications for use with a communication facility including remote terminals for individual callers from a pool of individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said method comprising the steps of:

cuing select ones of said remote terminals to prompt selective actuation by certain callers from said pool of individual callers of said voice communication means and said digital input means to provide responsive signals;

selectively identifying said responsive signals from said select ones of said remote terminals as digital data signals, digital control signals or audio signals, said responsive signals including caller identification data to access a file for a caller;

recording said audio signals from said certain callers in digital format;

testing either said digital data signals for approval or utilizing said digital data signals to determine the presence of said audio signals; and

processing data including data from said certain callers to isolate a subset of said individual callers.

40.   A voice-data control system for implementing an information service telephonic interface operation for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio response signals and digital input means for providing digital response signals, said control system comprising:

cue means for cuing select ones of said remote terminals to prompt selective actuation of said voice communication means and said digital input means to provide response signals in accordance with said information service;

status means to selectively identify response signals from each select remote terminal as (1) digital control signals, (2) digital data signals or (3) audio signals, wherein a response signal can serve as a digital control signal, a digital data signal, or both;

memory means for storing data relating to said individual callers including data as provided by said digital data signals or said audio signals encoded in a digital format;

means for addressing at least certain of said data relating to said individual callers from said memory means in response to at least certain of said digital response signals from said digital input means;

control means for actuating said cue means and said status means to cue and identify said responsive signals in relation to said selective actuation prompted by said cue means;

means for storing said audio signals representative of caller audio data and at least certain of said digital data signals in said memory means responsive to cuing by said cue means; and

interface processor means including means to isolate a subset of said individual callers on-line and subsequently processing certain of said data provided by a plurality of said individual callers off-line.

41.   A voice-data control system for implementing operations in accordance with an interface format, said voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals include voice communication means for providing audio response signals and digital input means for providing digital response signals, said voice-data control system comprising:

interface structure for receiving signals relating to said remote terminals, including digital control signals, digital data signals, and audio signals encoded in a digital format;

testing structure coupled to said interface structure, for testing caller data for said individual callers at said remote terminals for identification or billing or both as provided by certain of said digital data signals, said caller data comprising credit card number data including credit card expiration data for testing for either identification or billing purposes or both;

memory structure coupled to said interface structure and said testing structure for storing other data from said individual callers received in the form of signals including both said digital data signals and said audio signals wherein said other data includes audio data;

coupling structure for coupling a coupled terminal to said memory structure wherein said memory structure is addressed to provide said other data including at least said audio data to said coupled terminal; and

processing structure for processing calls from said remote terminals to a specific one of a multiple configuration of formats in accordance with said digital control signals.

42.   A central voice-data control and memory system for storing combined digital and voice data for certain of said individual callers at remote terminals of a communication facility, wherein said remote terminals include voice communication means for providing audio response signals and digital input means for providing digital response signals or a terminal with a display unit, said central voice-data control and memory system comprising:

interface structure for receiving signals relating to said remote terminals, including digital control signals, digital data signals, and audio signals encoded in a digital format;

testing structure coupled to said interface structure, for testing caller identification data for said individual callers at said remote terminals as provided by certain of said digital data signals, or for testing said caller identification data to determine the presence of said audio signals and for limiting access based on a use limit to qualified ones of said individual callers;

a memory structure coupled to said interface structure and said testing structure for storing other data from said individual callers received in the form of signals including both said digital data signals and said audio signals wherein said other data includes audio data and a flag indicates the presence of said audio data; and

coupling structure for coupling a coupled terminal to said memory structure wherein said memory structure is addressed to provide said other data including said audio data to said coupled terminal.

43.   A method for controlling voice-data communications for use with a communication facility including remote terminals for individual callers from a pool of individual callers, wherein said remote terminals include voice communication means for

providing audio response signals and digital input means for providing digital response signals, said method comprising the steps of:

cuing select ones of said remote terminals to prompt selective actuation by certain callers from said pool of individual callers of said voice communication means and said digital input means to provide responsive signals;

selectively identifying said responsive signals from said select ones of said remote terminals as digital data signals, digital control signals or audio signals, said responsive signals including caller identification data to access a file for a caller;

recording said audio signals from said certain callers in digital format;

testing either certain of said digital data signals for approval or testing said digital data signals to determine for the presence of said audio signals;

processing data including data from said certain callers to isolate a subset of said individual callers; and

accumulating at least certain of caller data provided by said responsive signals including said audio signals for said individual callers and subsequently processing said certain of said caller data.

44.   A method for controlling voice-data communications in an information service format for a plurality of individual callers, said method for use with a communication facility including remote terminals for use by certain of said plurality of individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said method comprising the steps of:

cuing said certain of said plurality of said individual callers to provide responsive signals indicative of caller data by actuating said voice communication means or said digital input means of said remote terminals;

in association with said cuing step, identifying said responsive signals provided by said certain of said plurality of said individual callers as digital data signals, digital control signals or audio signals;

recording at least certain of said caller data from said certain of said plurality of said individual callers including audio data in a digital format;

flagging said audio data; and

organizing the accumulation of certain of said caller data including said audio data to isolate a subset of individual callers.

45.   A method for controlling voice-data communications in an information service format for a plurality of individual callers, said method for use with a communication facility including remote terminals for use by certain of said plurality of individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said method comprising the steps of:

cuing said certain of said plurality of said individual callers to provide responsive signals indicative of caller data by actuating said voice communication means or said digital input means of said remote terminals;

receiving and identifying said responsive signals provided by said certain of said plurality of said individual callers as digital data signals, digital control signals or audio signals;

selectively recording said caller data from said certain of said individual callers including digital data and audio data in a digital format for at least certain of said plurality of said individual callers; and

processing said caller data including at least certain of said audio data to isolate subsets of individual callers.

46.   A method for controlling voice-data communications in an information service format for a plurality of individual callers, said method for use with a communication facility including remote terminals for use by certain of said plurality of individual callers, wherein said remote terminals include voice communication means for providing audio responsive signals and digital input means for providing digital responsive signals, said method comprising the steps of:

cuing said certain of said plurality of said individual callers to provide responsive signals indicative of caller data by actuating said voice communication means or said digital input means of said remote terminals;

in association with said cuing step, receiving and identifying said responsive signals provided by said certain of said plurality of said individual callers as digital data signals, digital control signals or audio signals;

recording said caller data from said certain of said plurality of said individual callers including audio data in a digital format for subsequent use; and

subsequently utilizing certain of said caller data including said audio data to isolate a subset of individual callers.

REMARKS

By this preliminary amendment, Applicant is canceling claim 1, without prejudice, and introducing claims 22-46 for the Examiner's consideration. Claims 22-46 are generally similar to claims 22, 32, 38, 40, 43, 45, 48, 51, 59, 62, 68, 75, and 79 of the parent co-pending application Serial No. 08/306,456. Applicant is canceling claims 22, 32, 38, 40, 43, 45, 48, 51, 59, 62, 68, 75, and 79 in the parent application today and will pursue them instead in this continuation application. Although the various claims dependent on claims 22, 32, 38, 40, 43, 45, 48, 51, 59, 62, 68, 75, and 79 of the parent application have not been transferred here, Applicant reserves the right to introduce and pursue any or all of those claims later. For the record it should be noted that such dependent claims of the parent application include the claims identified in the chart below.
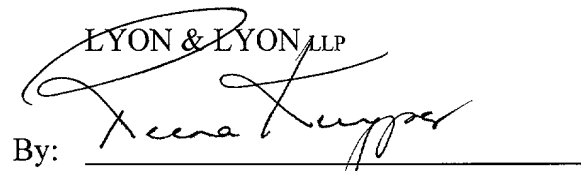
Independent Claim No. (of Parent 08/306,456)	Dependent Claim Nos. (of Parent 08/306,456)
22	23-31 and 88-90
32	33-37 and 92
38	39, 93-102 and 219
40	41-42
43	44
45	46-47 and 199-206
48	49, 50, 103-105
51	52-57 and 106-112
59	60-61, 113-122
62	63-67
68	69-74, 123-125, 207-217 and 220-222
75	76-78 and 126

Independent Claim No. (of Parent 08/306,456)	Dependent Claim Nos. (of Parent 08/306,456)
79	80-81 and 218
82	83-86
87	-
127	128-133
134	135-142 and 223-224
143	144-158 and 225-238
159	160-167
168	169-170
171	172-175, 239-247
176	177-178 and 248-249
179	-
180	181-188
189	190-196
197	198

Consideration of claims 22-46 in this application, which correspond generally to claims 22, 32, 38, 40, 43, 45, 48, 51, 59, 62, 68, 75, and 79 (of the parent application), respectively, is respectfully requested.

Respectfully submitted,

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VOICE-DATA TELEPHONIC INTERFACE CONTROL SYSTEM

Background and Summary of the Invention

5   This is a continuation-in-part of application
Serial No. 481,403 filed February 20, 1990 and entitled
"Voice-Data Telephonic Control System" which was a
continuation-in-part of application Serial No. 312,792
filed February 21, 1989 and entitled "Voice-Data
10   Telephonic Control System" which was a continuation-in-
part of application Serial No. 194,258 filed May 16,
1988 and entitled "Telephonic-Interface Statistical
Analysis System", issued July 4, 1989 as U.S. Patent No.
4,845,739, which was a continuation-in-part of applica-
15   tion Serial No. 018,244 filed February 24, 1987 and
entitled "Statistical Analysis System For Use With
Public Communication Facility", issued December 20, 1988
as U.S. Patent No. 4,792,968, which was a continuation-
in-part of application Serial No. 753,299 filed July 10,
20   1985 and entitled "Statistical Analysis System For Use
With Public Communication Facility", now abandoned.

As the use of computer techniques has steadily
grown, related telephonic communication techniques also
have expanded. In that regard, telephone systems have
25   been developed for effectively transmitting digital data
in forms commonly utilized by computer apparatus. At a

more personal level, the traditional push buttons of telephone instruments have been utilized to provide digital signals at a remote location for both data and control functions. Consequently, various operations

5   have been performed.

In the typical operation of a telephone instrument as a digital input device, voice messages prompt callers to provide data and control signals by actuating the alphanumeric buttons of a conventional

10   telephone. Detailed forms of such systems have been proposed in association with computers to provide various services, and one such system is disclosed in United States Patent No. 4,792,968 issued December 20, 1988, to Ronald A. Katz from an application Serial No.

15   07/018,244 filed February 24, 1987.

Although traditional systems for interfacing an individual person at a telephone terminal with a computer or data processor have been effective, such systems have been somewhat limited in application. In

20   general, the present invention is based on recognizing the need in such systems to accommodate voice signals as to provide recorded audio data, as for subsequent use. Accordingly, the system of the present invention accommodates a caller to identify digital control

25   signals, digital data signals and audio signals, all in an organized format as to accomplish a record for subsequent processing or use.

To consider a specific example, systems have been proposed in the past for interfacing individual

30   telephone terminals with computers, as for sales applications. Individual callers might dial to accomplish a computer interface, then provide ordering data by actuating the telephone terminal buttons to specify goods or services. One such system is disclosed in a

co-pending related patent application entitled "Telephone Interface Statistical Analysis System", filed May 16, 1988, and bearing a Serial No. 07/194,258 (now U. S. Patent No. 4,845,739) and a related prior applica-
5 tion, now U.S. Patent No. 4,792,968. In the use of such systems, the need is recognized for improved capability regarding audio data.

In general, the present invention comprises a telephone computer interface system accommodating
10 digital and vocal telephonic communication, the system being expanded to accommodate and flag audio data distinct from digital data. In using the disclosed system, either outbound or inbound calling operations attain an interface with a central data processing
15 system. Depending on the course of communication during the interface, various states are implemented for the central system to receive and identify: digital control signals, digital data signals and audio or voice signals. Somewhat conventional operation may involve
20 automated vocal communications to cue the caller and keypad digital communications from the caller. Generally, data received from the caller is set in memory for subsequent use or processing. The data may be addressed as to cue a remote terminal or to isolate a set or
25 subset. Callers may be qualified by automatic number identification (ANI) signals checked against an assigned consumable key number. Thus, the system accommodates flexible control and data accumulation (including cued audio) to accommodate any of various specific interface
30 applications or formats.

Brief Description of the Drawings

In the drawings, which constitute a part of this specification, an exemplary embodiment exhibiting

4

various objectives and features hereof is set forth.
Specifically:

FIGURE 1 is a block diagram of a system
constructed in accordance with the present invention;

5   FIGURE 2 is a block and schematic diagram of a
component in the system of FIGURE 1; and

FIGURE 3 is a flow diagram illustrating the
operating process of the structure represented in FIGURE
2.

10

Description of the Illustrative Embodiment

As required, a detailed illustrative embodi-
ment of the present invention is disclosed herein.
However, physical communication systems, data formats

15   and operating structures in accordance with the present
invention may be embodied in a wide variety of forms,
some of which may be quite different from those of the
disclosed embodiment. Consequently, the specific
structural and functional details disclosed herein are

20   merely representative; yet in that regard, they are
deemed to afford the best embodiment for purposes of
disclosure and to provide a basis for the claims herein
which define the scope of the present invention.

Referring initially to FIGURE 1, a series of

25   remote terminals T1-Tn (telephone instruments) are
represented (left). The terminals T1-Tn may be similar
and accordingly only the terminal T1 is shown in any
detail. The indicated terminals T1-Tn represent the
multitude of telephone terminals existing in association

30   with a communication facility CO which may comprise a
comprehensive public telephone network.

The communication facility CO, accommodating
the individual terminals T1-Tn, is coupled to a central
processing station CS generally indicated by a dashed-

35   line block. Within the station CS as illustrated,

processors are provided to interface the terminals T1-Tn so as to accomplish a desired operating format, and accordingly accumulate data relating to individual callers.

5   Calls to and from the terminals T1-Tn are individually processed in accordance with a specific format to accomplish a data cell or packet. For example, the objective of a call may be to order an item of merchandise to implement a mail-order operation.

10   Similarly, a service may be specified and ordered. Accordingly, the interface accomplishes data as a cell for processing the order. In other exemplary formats, the system may function for public polls, lotteries, auctions, promotions and games.

15   At any instant of time, the collective interface involving the communication system CO and the processing station CS may involve several thousand calls. Accordingly, the station CS may take the form of a sizeable computer or mainframe capable of simul-

20   taneously controlling smaller units or directly opera-ting to process many calls involving individual inter-faces. Although numerous possible configurations are available, for purposes of explanation, the central station CS of the disclosed embodiment includes a

25   control unit functioning with a plurality of audio response units and associated individual processors and attended terminals.

Essentially, the system of the present invention accumulates data from the remote terminals T1-

30   Tn in cells, which data may include audio data and digital data (numerical) flagged or otherwise distin-guished for subsequent expedient processing. Accor-dingly, the system enables a person at a terminal (T1-Tn) to provide data in both audio and digital forms.

35   For audio transmissions, the person utilizes the

telephone handpiece (microphone) while for digital communications, the person utilizes the telephone push buttons (keypad).

Considering the exemplary telephone terminal T1 of FIGURE 1 in greater detail, a handpiece 10 (microphone and earphone) is shown along with a panel 12 provided with a rectangular array of individual push buttons 14 in a conventional configuration. Of course, the handpiece 10 accommodates analog signals while the panel 12 is a digital apparatus. As disclosed in detail below, a person is informed or cued through the handpiece 10 (earphone) to provide data in accordance with a specific format. In accordance herewith, the person may provide signals utilizing either the buttons 14 or the handpiece 10 (microphone).

In conventional telephone structures, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". Thus, the buttons 14 encompass: the numerals "0-9", the symbols "*" and "#" and the alphabet except for the letters "Q" and "Z".

At this stage, some specific aspects of the communication interface are noteworthy. Essentially, by telephonic dialing, the communication facility CO is coupled selectively to certain of the terminals T1-Tn through audio response units AR1-ARn. For example, as a result of dialing a specific telephone number at one of the remote terminal units T1-Tn, the communication facility CO couples the actuated terminal through one line of several sets of lines LS1-LSn to one of the audio response units AR1-ARn. Note that automatic call distributors may be utilized as well known in the art.

From the audio response units AR1-ARn, incoming lines 20 are received through a coupler 22 for communication with individual interface format processors IP1-IPn. Note that the interface processors IP1-IPn are illustrated as separate and distinct units; however, as mentioned above, it is to be recognized that various structural processing combinations may be used, based on time sharing, parallel processing, compiler techniques, bus technologies and other well known computer techniques to accomplish the objective processing as explained in detail below. In some instances, certain of the structure and functions of the processors IP1-IPn can be variously incorporated in the units AR1-ARn. Of course, specific arrangements and configurations will likely be implemented based on available hardware and software development.

The coupler 22 is also connected to a master control and memory unit 24 which is associatively coupled to a look-up table 25, a consumable key limit unit 27, a subset counter 29 and through a crossbar 26 to each of the processors IP1-IPn. Note that both the function and structure of crossbars for selectively interconnecting multiple parallel structures are well known in the computer arts. For a detailed description of crossbars, see the book, "High-Performance Computer Architecture" by Harold S. Stone, published by Addison-Wesley Publishing Company, 1987.

The coupler 22 essentially functions as a switch as well known in the prior art to establish line couplings from one line of an audio response unit (AR1-ARn) to one of the interface processors IP1-IPn. The operation of the coupler 22 is implemented in association with the control unit 24 which may be programmed to execute control and memory functions as detailed below. Again, the division of functions between the unit 24,

the units AR1-ARn and the processors IP1-IPn may vary
considerably depending on available structures and
techniques. The disclosed system is merely exemplary in
that regard.

5   Generally, in a sales format, the interface
processors IP1-IPn receive basic record data from the
unit 24 and order data from the terminals T1-Tn. In a
multiple format configuration, program data may be
stored in the processors IP1-IPn or supplied from the
10   unit 24. In any event, in accordance with a program or
format, a packet of data is collected in a processor
IP1-IPn during an interface. After being organized in a
cell and flagged, the data packet is returned from an
interface processor IP1-IPn to the unit 24 for subse-
15   quent use or processing. For outbound operation, the
unit 24 functions as an automatic dialer to attain
desired connections through the units AR1-ARn in
accordance with stored telephone numbers.

Again, considering a sales format, typically
20   individual data cells or packets of data are organized
and returned to the unit 24 for processing which
ultimately involves performing a service or instructions
for shipping merchandise and billing. In some formats,
during the course of interfaces with certain callers,
25   the need may arise for person-to-person oral communica-
tion. In accordance herewith, to accommodate that need,
the interface processors IP1-IPn may be individually
associated through a coupler 30 with an attended
terminal AT1-ATn. For processing operations as men-
30   tioned above, the terminals AT1-ATn may be connected
through a coupling unit 31 to an off-line processor 33,
also connected to the control and memory unit 24.

Recapitulating to some extent, the general
operation of the system of FIGURE 1 involves the
35   development and maintenance of individual data packets

or cells drawn from the unit 24 to the individual
processors IP1-IPn during interface communications with
individual remote terminals T1-Tn. In the exemplary
format as treated below, each data cell manifests a

5 merchandise order identifying specific goods, a specific
customer, a shipping destination and other related data.
In accordance herewith, data in individual cells may
include flagged audio data. In any event, the operation
of the system involves the organized accumulation of

10 mail-order data (some of which may be audio) in the unit
24 addressable for subsequent use by the processor 33,
as to implement billing and delivery of services or
merchandise.

As explained in detail below, the data cells

15 (manifesting individual orders) are developed in the
individual processors IP1-IPn. Structural details of an
exemplary processor are shown in FIGURE 2 and will now
be considered. A cell register 34 (FIGURE 2, center) is
divided into fields to illustrate an exemplary data

20 format. Specifically, the cell register 34 defines
several separate fields for data components manifesting
an exemplary order. Record data for some of the fields
may reside in the master control and memory unit 24
(FIGURE 1) before the occurrence of any telephone inter-

25 face. However, other fields are loaded or modified
during the period of the interface with a caller at one
of the remote terminals T1-Tn providing elements of the
data.

Generally, variously accumulated record data

30 is initially loaded into the cell register 34 from the
control and memory unit 24 (FIGURE 1) through a bus 36
(FIGURE 2, right center) that is connected through the
crossbar 26 (FIGURE 1) to the unit 24. The same bus 36
accommodates movement of a completed or modified data

35 cell to memory (in the unit 24).

As suggested above, some fields in the cell register 34, as those pertaining to a specific merchandise order, are always loaded by data resulting from the interface and received through a two-way line 38 (FIGURE 2, upper left). That is, a caller is steered through the interface interval, being prompted or cued to provide responses selectively in the form of: (1) digital control signals, (2) digital data signals or (3) audio signals. Also, in certain applications digital ANI telephone signals may be received through the line 38 indicating the telephone dialing number of the caller. Specifically, ANI (automatic number identification) signals may be provided from the communication facility CO (FIGURE 1) automatically indicating the telephone number for the calling terminal T1-Tn. The ANI signals may be treated either as control or data signals on being received through an audio response unit (AR1-ARn, FIGURE 1), the coupler 22 and the line 38 (FIGURE 2).

Generally, control signals in the line 38 are utilized for the controlled registration of digital data signals and audio signals as appropriate to each specific interface. Of course, the data and audio signals also are received through the line 38.

For convenience of illustration and explanation, the line 38, connected to the coupler 22 (FIGURE 1) is shown to include two separate communication paths, specifically an outgoing path 40 (FIGURE 2) and an incoming path 42. Of course in practice, the two paths would comprise a common two-way or bidirectional line. For outbound calls, the master control and memory unit 24 (FIGURE 1) supplies dialing signals through the coupler 22 and a unit (AR1-ARn) to the facility CO. As indicated above, an automatic dialer structure is incorporated as well known in the art. On completion of

a connection to a terminal T1-Tn, the unit 24 actuates a processor IP1-IPn through the crossbar 26. Thus, an addressed data packet is used to advise, inform or cue a person at a connected remote terminal (T1-Tn). In some

5   cases, for example inbound calls, an audio response unit AR1-ARn may perform some preliminary operations, after which calls are referred to a processor IP1-IPn through the coupler. Usually, coupling a remote terminal T1-Tn to a processor IP1-IPn initiates an interface format.

10   During an interface operation, as with the processor IP1 for example, the connection through the coupler 22 and the audio response unit AR1-ARn remains active. For example, the outgoing communication path 40 (FIGURE 2) is provided with voice signals from a voice

15   generator 44 that is in turn controlled by a processor controller 46. Generally, the controller 46 may possess some substantial computing capability along with storage. Accordingly, it responds to an operating program as disclosed in detail below to accomplish an

20   interface format.

             The outgoing communication path 40 of the line 38 also is connected to one of the attended terminals AT1-ATn. The signal route in FIGURE 2 is to the path 40 either from a line 48 or the voice generator 44. With

25   respect to the incoming path 42, signals are provided through a multiplexer 52 to provide various lines L0, L1, L2 or L3 exclusively active. The line L3 or line 50 is coupled to an attended terminal AT1-ATn (FIGURE 1). As indicated above and explained in detail below, under

30   various circumstances, signals from persons at terminals are variously transferred, including transfer to an attended terminal (AT1-ATn, FIGURE 1). Thus, the status of an interface may vary, one status or state designating an interconnection of one of the remote terminals

T1-Tn with an attended terminal, that is, one of the
terminals AT1-ATn.

The status of an interface with a caller is
indicated by a status register 56 (FIGURE 2, upper

5   right) which is controlled by the process controller 46
and in turn controls the multiplexer 52. The status
register 56 basically comprises a two-bit counter
capable of indicating four states to control the lines
L0-L3 from the multiplexer 52, as indicated below.

10

		Active
State	Operation	Multiplexer Line
"0"	Cue data signals (digital)	L0
"1"	Cue control signals (digital)	L1
"2"	Cue audio signals	L2
"3"	Actuate live interface	L3

15

The states "0", "1" and "2" indicate opera-
tions to prompt persons to provide signals digitally.

20   Alternatively, any of the states may be used merely to
inform a person where no response is to be received. As
indicated above, in the state "3", the caller speaks
directly with an operator to provide information in an
audio form. The other states accommodate computer

25   interface signals. Implementing the different states,
the multiplexer 52 (controlled by the status register
56) selectively activates one of the four lines L0, L1,
L2 or L3 to receive a specific class of signals from the
path 42.

30   Generally, the control signals received in the
line L1 are applied to actuate the controller 46. The
data or information signals received in the lines L0 and
L2 are provided to the cell register 34 through a gating
network 62 (lower left). Several connections are

involved. The line L3 is coupled to an attended
terminal (AT1-ATn, FIGURE 1) through a line 50.

The line L0 (digital data) is connected to the
controller 46 and to a movable contact 64 of the gating

5   network 62. The line L1 is connected only to the
controller 46. The line L2 (audio) is connected through
an audio processor 60 to the controller 46 and to the
movable contact 64.

The gating network 62 is illustrated in an

10   electromechanical form for ease of explanation with the
movable contact 64 displaceable to engage each of the
stationary contacts C1-C11 in sequence. However, in an
actual embodiment, a well known analogous solid-state
configuration would be employed.

15   In accordance with the symbolic representation
of the gating network 62, the movable contact
64 is driven by a gate control 66 to sequentially
encounter stationary contacts C1-C11 which are coupled
to fields of the register 34. A mechanical drive

20   connection is indicated by a dashed line 67, the gate
control 66 being actuated by the process controller 46
as described in detail below. Somewhat more specifi-
cally, the operations directed by the controller 46 are
illustrated in FIGURE 3 and will now be considered in

25   detail.

The flow diagram of FIGURE 3 implements an
exemplary mail-order format for a sales organization
with existing "local" customers of record (identified
by telephone number, credit card number, etc.) accept-

30   able for credit transactions. To pursue an example,
customers are provided with a "special" catalog from
which a single order may be placed for each telephone
terminal. Thus, customers are assigned a consumable key
of "one" to accordingly limit ordering.

Calls from customers are coupled through an audio response unit, e.g. unit AR1 (FIGURE 1) and the coupler 22 to the master control unit 24. In one format, the customer is recognized by a telephone number

5   manifest by automatic number identification (ANI) signals. Customer data is fetched to the consumable key limit unit 27 based on the calling telephone number. The call is then tested to proceed conditionally on the key not being previously used or consumed. The test is

10   illustrated by a block 77 (FIGURE 3) and is executed by the unit 27 with reference to a field 81 of the data packet as shown in the register 34 (FIGURE 2). If there has been a previous call, the instant call is terminated as indicated. Otherwise, the data cell is fetched from

15   the unit 24 to a cell register, e.g. register 34 (FIGURE 2). The operation is indicated by the block 79 (FIGURE 3). Thus, calls to a specific format number are limited to "one". Of course, consumable keys may be set to accomplish any desired limitation with respect to a

20   specific format. Format interface operation follows approval of a call.

At the beginning of an interface operation, the processor involved, e.g. processor IP1 (FIGURE 2) is set to state "0" as indicated by the block 80 (FIGURE

25   3). That state, also indicated by the status register 56 (FIGURE 2) controls the processor 46 so that a caller is cued for digital data signals to be formed by use of the buttons 14 at the caller's remote terminal. Specifically, the caller might be cued: "Please

30   indicate your first item by keying in the three-digit catalog number." The audio is reproduced at the terminal.

As will be described in detail below, identification for an item is stored in a field 82 (FIGURE 2)

35   of the cell register 34. Similarly, color, size and

code data for selected items are cued and stored in a field 84. Of course, other items may be ordered with the consequence that they are recorded in further of the fields 82 and 84 of the cell register 34. The operation also is represented by the block 86 in FIGURE 3 and might be cued: "Please indicate your next item or push button '3' to indicate you are finished."

At the conclusion of the item ordering, the system sets state "1" (cue control) in the status register 56 (FIGURE 2) as indicated by block 88 (FIGURE 3). Note that the state "1" also may be attained by a period of silence from the caller. In any event, the subsequent operation involves a junction, as indicated by the block 90, a determination to be made by whether or not the caller is a customer of record, e.g. "local account?" As an example, the caller might be cued: "If you have a local account, please push button '1'; if not, please push button '2'." The resulting digital control signals set the course for subsequent operations as implemented by the controller 46. Of course, the indication may be confirmed or originated from the data packet.

If a caller has a local account, for example, implying that the caller's address is in the data packet, the system status is reset to state "0" (cue data) as indicated by block 92. In that event, the system resumes the accumulation of non-vocal digital data by cueing for the card number as indicated by the block 94. Note that with the indication of a local account, a designating code (customer I.D. number) is set in the field 98 of the cell register. Concurrently, the expiration date for the customer's account or card is stored in the field 150. These operations are indicated by the block 100 (FIGURE 3).

Pursuing the example, the system is again set in state "1" to cue for control signals as indicated by the block 104 (FIGURE 3). Specifically, as indicated by a junction block 104, a search is made for the customer's identification number. If the number is found, another control signal is cued. Specifically, as indicated by the block 106, the customer's address is verified. If the proper address is confirmed to be registered for the customer, the record is completed as indicated by the block 108. This operation, performed by the unit 46, may involve inventory verification or other internal operations as described in detail below.

Next, the system operation progresses to an internal decision block 110 to test whether or not audio data has been received. Essentially, the audio test simply queries whether or not the status register 56 has been set to manifest the existence of the states "2" or "3" to enter audio data. Control in that regard is by the controller 46 (FIGURE 2).

In the example as treated to this point, neither states "2" nor "3" has occurred. However, depending on the determination, a field 112 (FIGURE 2) of the cell register 34 is set with one of the two possibilities. If audio data had been entered, the block 114 would indicate a class designation of binary "1" in the field 112. Conversely, a class representative "0" is entered in the field 112 for orders involving no audio data. The operation next proceeds to record the loaded cell in memory as indicated by the block 116.

The operation as outlined to this point has covered routine orders, i.e. customers with local accounts placing orders that can be processed entirely on the basis of digital control signals and digital data signals (no audio) entered digitally as outlined above.

The accommodation of other orders involving audio communication will now be considered.

Generally, audio operations involve either the introduction of a person-to-person interface, as for example for a new customer, or audio signal interface, as for example to record a new address for an existing customer. During any format operation, these operations may be actuated variously in combination with digital data control and recording. Such operations may involve proceeding through a block 118 (FIGURE 3, upper left); however, other possibilities exist. One such possibility occurs when a caller indicates that his record address is not correct. Specifically in that regard, the junction block 106 (FIGURE 3, right center) queries "verify address?" The cue or prompt might take the form: "According to our records, you are Mr. John Henry with a billing and shipping address of 10 Beverly, Los Angeles, California." A "no" response results in another test as indicated by the block 120 questioning whether or not the present situation is merely a case of an altered address. If so, the system proceeds from a "yes" determination of the block 120 to obtain an audio record of the new address. As indicated by the block 122, state "2" is set and the caller is cued to state his new address as indicated by the block 124. The address is processed by the audio processor 60 (FIGURE 2) and stored as audio data as indicated by the block 126 (FIGURE 3). The operation then proceeds on the basis of a complete record as indicated by the block 108. Note that in this instance audio data is regis-tered in the cell 34 (FIGURE 2) specifically in voice fields 126 with the status register 56 (FIGURE 2, upper left) indicating state "2". Consequently, the junction block 110 (FIGURE 3, lower right) indicates the presence of audio data with the result that the cell register 34

stores a class "1" bit to indicate the order data includes audio data.

Returning to the block 118 (FIGURE 3, upper left) the operation for the case of a complex address change involves setting the operating state "3", i.e. actuating a live interface. Other patterns also may lead to that operating sequence. For example, as suggested above, patterns for a line operator interface may include a non-local account or failure to locate account data. Also, throughout the interval of an interface, a caller may prompt a direct personal contact simply by depressing the telephone button designated "*". Accordingly, as indicated in FIGURE 3 at block 118, the occurrence of an asterisk signal (*) sets state "3" with operation proceeding from block 118 to activate a live interface as indicated by the block 128. The controller also may initiate state "3" as when meaningless data is received.

It is noteworthy that in an operating system, at any specific time, the demand for operators may exceed the number of operators. In that event, callers who cannot be accommodated are cued to punch in their telephone numbers and/or other data, and/or record via audio or numeric signals such data as to return calls when operators are available. The logic of such an operation is embodied in the block 128, "actuate live interface".

When a live interface is actuated involuntarily for a caller in accordance with the system as described, an incentive is offered to keep the caller on the line. Specifically, the operation involves the step represented by the block 118 (FIGURE 3) "set state '3'" and the counter 29 (FIGURE 1, upper right). The master control unit 24 might actuate the unit AR1 to produce an audio message at the terminal T1 as follows: "You are

being transferred to a live operator. Please stay on
the line as you may win a valuable prize." Immediately,
the unit 24 increments the counter 29. If a specified
count is attained, e.g. "1000", the caller is awarded a
5   premium.

In the example, if the caller is the thou-
sandth to be transferred, the unit 24 actuates the unit
AR1 to produce an announcement: "You have won a $100
credit for your next order. Please stand by."

10   If the caller is not the one-thousandth to be
transferred, as the transfer is made, the caller is
informed: "Sorry, no winner, but here is our operator."
Essentially, transferred calls are a subset of callers,
involuntarily transferred calls are a sub-subset and
15   winners are still another subset.

Once an operator contact has been established
several possibilities exist. One possibility is that
the operator completes the contents of the cell register
34 (FIGURE 2) without audio data. Essentially, an
20   operator, active at one of the attended terminals, e.g.
terminal AT1 (FIGURE 1) has direct control of the cell
register 34 (through the controller 46, FIGURE 2) along
with a data display and may be able to enter digital
data manifesting the order. That possibility is
25   indicated by the junction block 130 (FIGURE 2), "digital
data complete?"

If the data can be completed without audio
record signals, the system operation proceeds to the
block 108 (record complete). If the order record is not
30   completed void of audio data, operation proceeds in
state "3". Again, under control of a live operator, the
system may follow different paths to produce an ultimate
determination of whether or not the audio data provides
a complete order as indicated by the decision block 134.
35   In that regard, an operator may perfect an order record

on the basis of a bank credit card or a new customer
accommodation. In any event, if an order is not
completed, the operation simply terminates as indicated
by the block 136. Conversely, a completed order returns

5 operation to block 108 indicating the record is
complete.

Exemplary operating patterns of interfaces are
treated in detail below; however, after addressing
individual caller data, the disclosed embodiment

10 reproduces audio messages at the connected remote
terminal. As the interface proceeds, the system cues a
remote terminal, as with voice instructions to prompt:
(1) digital control signals, (2) digital data signals
and (3) audio signals for digital recording. Depending

15 on the control signals, and the format, various patterns
are selected with the objective of completing data in
the cell register for subsequently processing the
individual order. Of course, the processing generally
includes data for shipping merchandise and billing the

20 customer.

Consider now a detailed exemplary operation
with the attendant operations in the structures of
FIGURES 1 and 2 to accomplish the process as illustrated
in FIGURE 3. Preliminarily, assume the system is

25 programmed to process orders from XYZ COMPANY for items
of merchandise identified to customers as from catalog,
newspaper or other advertising. Established customers
of the XYZ COMPANY are identified by customer number,
telephone number, name and address in the master control

30 and memory unit 24 (FIGURE 1). Assume initially that
such a customer actuates the telephone terminal T1 to
accomplish an interface through: the communication
system CO, one of the audio response units AR1-ARn and
the coupler 22 with one of the interface format

35 processors IP1-IPn.

Note that the initial phase of an inbound call may be variously implemented. For example, call signals provided to an audio response unit AR1-ARn may include representations of the caller's number and accordingly access a file on the caller. In accordance with automated number identification equipment designated ANI embodied in the communication facility CO, the caller's number may be provided in a digital form. The master control and memory unit 24 then accesses the caller's cell accordingly to address individual caller data. As described above, the data may be tested before transfer to the cell register 34 with the interface being conditioned on the test. That is, as indicated above, a customer may be limited to a specified number of order calls with regard to a particular catalog or offer. Thus, the interface may involve several tests, one of which is preliminary to setting the addressed customer data in the register 34. An example will illustrate.

An offering may be made to potential customers regarding goods or services in limited amounts. For example, customers might be offered one or two purchases, but no more. Accordingly, the data cells for such customers would be set to allow only one or two purchases as specified. Specifically, for example, the field 81 (key number) for each potential customer key number would be set at "one". Upon the occurrence of a call by a customer, an individual associated data cell would be addressed using the caller's telephone number provided by automatic number identification (ANI) equipment. From within the master control and memory unit 24, the field 81 (key number) of the cell would be checked by the consumable key limit unit 27. If the consumable key number had been reduced to "zero" or incremented to "one" as programmed to indicate a previous call, the call would be rejected by the active audio response unit

AR1-ARn. Otherwise, the call would be accepted and the consumable key number would be incremented or decremented by the unit 27.

With the acceptance of the call, the data cell would be set in a cell register of a selected interface format processor, e.g. processor IP1, register 34 (FIGURE 2). The direct interface would then proceed.

Recognizing the various possibilities, assume that at the outset of the direct interface, the voice generator 44 (FIGURE 2, upper left) is actuated by the process controller 46 to greet the caller. For example, the voice generator 44 might cue the caller as follows: "Thank you for calling XYZ COMPANY telephone merchandise service. Please push three buttons on your telephone to identify your first item by catalog number."

Signals representative of three decimal digits identifying an item are supplied from the line 42 (FIGURE 2, upper left) to the multiplexer 52. As the status register 56 is in the "0" state, the signals pass from the multiplexer 52 through the moving contact 64 and the stationary contact C1 to be registered in field 82, "item".

In the illustrative format, the customer next is prompted to digitally enter data indicating choices of color, size, special code and so on. For receiving such data, the gate control 66 actuates the gating network 62 in synchronism with the cue to the second position so that the item data is provided through the contact C2 to the field 84. Following a similar pattern, the caller may identify several item designations which are registered in the item fields 82 and 84 of the cell register 34. Note that items are checked in relation to inventory by the controller 46 acting through the unit 24 (FIGURE 1) and the associated inventory look-up table 25.

When the caller indicates entry of the last item (as by an interval of silence or a signal) the voice generator 44 is actuated by the controller 46 to complete the interface as predetermined. In one format, the process controller 46 has the caller's telephone number from an ANI communication from the facility CO which addressed the caller's data record. Various information then may be confirmed or supplemented in the register 34. Note that the system as disclosed is adaptable to accommodate: first-time callers, callers of record and callers with out-dated records. Various payment arrangements for goods or services also are available.

As an alternative, consider a format using a customer's credit card number to access the file. Initially, the operation of the controller is to cue for the method of payment. Specifically, for example, the caller might be cued: "If you wish this order billed to your XYZ COMPANY credit card, please push '1'. Otherwise, push '2'." Accordingly, with a credit card confirmation, the process controller 46 sets the card type in the field 96 advancing the process of FIGURE 3 to proceed from the decision block 90.

Assuming the caller possesses a credit card of XYZ COMPANY, the voice generator 44 (FIGURE 2) states a request (cues) for the number. For example: "Please use your telephone buttons to key in your card number." In synchronism with the cue, the gating network 62 and the status register 56 are set. Accordingly, signals representative of the digits forming the card number are received through the line 42 (FIGURE 2, upper left), the multiplexer 52 and the line L0 to the gating network 62 (lower left). As the gate control 66 is set by the process controller 46, the movable contact 64 dwells on

the stationary contact C4, and the customer's number is stored in the field 98.

As an alternative to the caller's telephone number for addressing individual data, the customer's

5   number may be utilized. In either event, individual data cells are addressed for record data to load other fields, e.g. fields 150, 152, 154, etc. Generally, if a record for the customer's card is located in the unit 24 (FIGURE 1), the information is returned via the bus 36

10   (FIGURE 2, right center) and registered in the cell register 34. Alternatively, the data may be confirmed by the caller and entered through the gating network 62.

In the disclosed embodiment, the data includes the expiration date of the card placed in field 150, the

15   customer's telephone number set in field 152 and the customer's name and address set in the field 154. The telephone number may be useful if a live interface is prompted or, as indicated above, it may be used as an address to locate a particular file or data.

20   Considering the stage-by-stage confirming operation, the location of a customer's record prompts the controller 46 (FIGURE 2) to actuate the gate control 66 setting the movable contact 64 to dwell in sequence at the contacts C5, C6 and C7. With confirmation, the

25   customer's card expiration date, telephone number and address are supplied to the fields 150, 152 and 154. For example, the customer's address is supplied from the controller 46 to the voice generator 44. Consequently, as indicated above, the caller might be prompted as

30   follows: "According to our records, you are Mr. John Henry with a billing and shipping address of 10 Beverly, Los Angeles, California. If our information is correct, please push '1'; if not, please push '2'." This operation is symbolized in FIGURE 3 by the block 106

35   (right center).

Of course, the confirmation of a customer can be broken into even smaller communications if desired. Note that in cueing the caller for confirmation, the status register 56 is set to manifest state "1" indicat-
5   ing that control signals are being cued. Consequently, the response from the caller is passed through the multiplexer to line L1 and then to the process controller 46.

If the caller indicates the information is
10 correct, the process controller 46 supplies the address data of record to the field 154.

If there are no voice fields, the controller 46 actuates the gate control 66 to set the movable contact 64 at the stationary contact C10. The operation
15 of completing the record then involves providing an acknowledgement number through the contact C10 to the field. The acknowledgement number also may be communicated to the caller by the process controller actuating the voice generator 44. Specifically, an acknowledge-
20 ment number is set in the field 156 and is vocalized to the caller. Of course, as with other data from storage, it may be confirmed, e.g. "Please repeat your acknowledgement number." Note that callers in a winning or other special set or subset may be identified by coded
25 acknowledgement numbers.

As the final step in the sequence, the movable contact 64 is actuated to engage the stationary contact C11 through which the process controller 46 supplies a signal indicative of binary "0" manifesting that the
30 order data does not include an audio component, i.e. the voice fields 126 are blank.

With the order complete, the contents of the cell register 34 is transferred through the bus 36 to the master control and memory unit 24. As indicated
35 above, subsequent processing may involve subsequent

operations to: place related calls, fill orders and bill charges. Specifically for example, referring to FIGURE 1, the manually attended terminals AT1-ATn may be actuated to control the processor 33 through the

5 coupling unit 31. The processor 33 is operated in cooperation with the unit 24 to process individual orders. Note that the audio data stored in cells is flagged for selection as explained in detail below.

To illustrate an alternate course in the

10 process as generally described above, assume that the customer has a valid credit card record with the XYZ COMPANY; however, the address of record is incorrect. In processing an interface with such a customer, the operation would be as described above except that the

15 junction represented by the block 106 (FIGURE 3, right center) would determine an incorrect address. Consequently, with the system in state "1", a control signal manifesting an incorrect address is supplied through the line L1 to the process controller 46 setting up an

20 alternate operation. Specifically, the next step involves determining whether the verification failure may be corrected by a mere change of address as indicated by the block 120 (FIGURE 3). To implement the operation, the process controller 46 (FIGURE 2) actuates

25 the voice generator 44 to cue the caller for control signals. For example, the cue may be stated: "If it is simply a matter of correcting or changing your address, please push '1'. Otherwise, push '2'."

If the caller actuates the "1" button, a

30 control signal is provided through the multiplexer 52 and the line L1 to the process controller 46 indicating a simple address correction. As a result, the process controller 46 sets the status register 56 to state "2" (see block 122, FIGURE 3). As a consequence, in the

35 system of FIGURE 2, the input path 42 is coupled through

the multiplexer 52 to the line L2 for supplying audio
signals to the audio signal processor 60. Note that
during this phase of operation, the process controller
46 actuates the gate controller 66 to set the movable

5   contact 64 at the stationary contact C8 or C9 for
recording audio data in the voice fields 126.

In the configuration as described, on cue, the
oral statement of the caller's address is provided as an
analog signal which may be variously transmitted through

10   the communication facility CO (FIGURE 1) to ultimately
reach the line 38 (path 42) (FIGURE 2, upper left).
From the path 42, the representative analog signal is
supplied through the multiplexer 52 and the line L2 to
the audio signal processor 60 which may variously

15   process the data and encodes the analog signals in a
digital format. Accordingly, digital signals indicative
of the caller's correct address are registered in the
fields 126 of the cell register 34.

With the proper address stored, the customer's

20   record is complete in the cell register 34 and the
process proceeds to the operations represented by block
108 (FIGURE 3, right center). Specifically, an acknow-
ledgement number is revealed and stored in the field 156
of the cell register 34. As audio signals are involved,

25   the field 112 registers a binary "1" indicative of that
class of data cell (audio).

Note that data words stored in the cell
register 34 may be variously segregated or processed
based on their classification as registered in the field

30   112. For example, it may be desirable to segregate
class "1" and class "0" orders for distinct off-line
processing. In that regard, as class "0" orders have no
audio data, they involve somewhat simpler process
operations in that no human action is involved.

35   Conversely, class "1" orders in the disclosed system are

contemplated to involve human processing to convert spoken words to digital data.

To pursue another possible course of operation, assume that prompting or cueing a customer regarding his altered address does not involve a mere change. That is, assume the decision block 120 (FIGURE 3, central) produced a control signal manifesting "no", i.e. more than a mere change is involved and a live contact interface is desirable. Upon such an occurrence, state "3" is set as indicated by the block 118 (FIGURE 3). As indicated above, several other possibilities may set the operation of state "3". In any event, the status register 56 (FIGURE 2) is set by the controller 46 to manifest state "3". Consequently, the status register 56 controls the multiplexer 52 actuating communication through the line L3 to the lines 48 and 50 coupled to one of the attended terminals AT1-ATn (FIGURE 1).

In the configuration of state "3", the process controller 46 along with the lines 48 and 50 are linked to one of the attended terminals AT1-ATn enabling an operator to speak directly with a caller and concurrently set data into the data cell register 34 through the controller 46. Note that the attended terminals AT1-ATn include a display and, accordingly, the controller 46 cooperatively drives the display with the cell register to indicate the state of the interface and the caller's data. Thus, unconventional orders are processed with the system in state "3" as described above, the process flowing from the block 118 (FIGURE 3, upper left).

Of course, numerous possibilities exist for completing an order with an attended terminal. In that regard, the contents and control of the cell register 34 is by the attended terminal and the problem may simply

be one of communication in which case the order data may be completed either with or without audio data.

Recapitulating to some extent, a live interface is prompted from several situations. One case involves the caller depressing the "*" button. Also, if the caller does not have credit with the XYZ COMPANY (not a local account) a live interface is prompted. In that regard, an alternative credit card as a bank card may be employed. Accordingly, data is received in either an audio or non-audio form.

Consider a bank credit card order with reference to FIGURE 2 in which the cell register 34 receives alternate information. In this situation, the field 96 may store an indication of an acceptable bank card. Specifically, fields 96, 98 and 150 respectively store a bank card type, the bank card number and the expiration date. It may be further advisable to store the caller's telephone number in field 152. The caller's name and address will be stored; and in that regard, either the field 154 may be utilized by the operator at an attended terminal or an audio record may be keyed for storage in one or more fields 126. If the order is completed by an operator, the system proceeds as explained above with the final steps of indicating an acknowledgement number and designating the class of the order. Thereafter, as in other examples, the contents of the cell register is returned to the master control and memory unit 24 (FIGURE 1) for subsequent processing. Note, class "1" orders also may be stored, as in a processor IP1-IPn until completed (without audio data).

It may be seen that the system accomplishes telephonic interfaces utilizing various operations in accordance with control signals prompted by cues from a voice generator. That is, the system alternately may cue a caller to provide: digital data, control data or

audio data. Concurrent with the cueing operations, the system assumes a state for compatibly processing responses. Specifically, if control signals are cued, the system is controlled accordingly. If data signals

5   are cued, the system registers such data in either an audio or non-audio format. Furthermore, depending upon the detailed operation of the system, order data is developed as in individual cells for subsequent off-line processing. Individual packets or cells of such data

10   are classified as disclosed above, and such classifications may be effectively utilized to segregate or perform various other processing operations.

In view of the above description, it will be apparent that the system of the present invention may be

15   effectively used in telephonic interfaces to accommodate flexibility and control by a caller. Although the disclosed embodiment is directed to a sales operation, it will be apparent that the system may be variously embodied to accommodate any of a variety of telephonic

20   interface operations, e.g. poll, game format, information service and so on. Furthermore, it will be apparent that while the disclosed embodiment comprises specific elements and configurations, any of a variety of structure might well be utilized. Accordingly, the

25   scope hereof is deemed to be as set forth in the claims below.

WHAT IS CLAIMED IS:

1.   A voice-data control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means for providing audio response signals and digital input means for providing digital response signals, said control system comprising:

cue means for cueing select ones of said terminals to prompt selective actuation of said voice communication means and said digital input means to provide responsive signals;

status means to selectively identify response signals from each select terminal as digital control signals, digital data signals or audio signals;

memory means for storing individual caller data;

means for addressing individual caller data from said memory means in response to digital signals from said digital input means;

means for storing digital data signals from said digital input means as additional individual caller data;

control means for actuating said cue means and said status means to cue and identify audio signals, operation of said control means being conditioned on the failure of said means for addressing individual caller data to provide signals representative of caller data from said memory means; and

means for storing said audio signals representative of caller data in said memory means responsive to cueing by said cue means.

1   2.   A system according to claim 1 further
2 including interface processor means for receiving said
3 audio signals representative of caller data and said
4 digital signals for processing.

1   3.   A system according to claim 2 wherein said
2 interface processor includes means to isolate a subset
3 of said callers.

1   4.   A system according to claim 1 further
2 including consumable key test means to qualify callers
3 with respect to limited use.

1   5.   A system according to claim 1 wherein said
2 communication facility provides automatic number
3 identification (ANI) signals and said status means
4 selectively identifies said automatic number identifica-
5 tion signals as digital control signals or digital data
6 signals.

1   6.   A system according to claim 5 further
2 including consumable key test means to qualify callers
3 with respect to limited use and wherein said callers are
4 identified by said automatic number identification (ANI)
5 signals.

1   7.   A voice-data control system for use with a
2 communication facility including remote terminals for
3 individual callers, wherein said remote terminals may
4 comprise a conventional telephone instrument including
5 voice communication means for providing audio response
6 signals and digital input means for providing digital
7 response signals, said control system comprising:
8   cue means for cueing select ones of said
9 terminals to prompt selective actuation of said voice

10 communication means and said digital input means to
11 provide response signals;

12   status means to selectively identify respon-
13 sive signals from each select terminal as digital
14 control signals, digital data signals or audio signals;

15   control means implementing a stored program to
16 control said cue means and said status means in accor-
17 dance with said program and said digital control signals
18 to prompt the provision of responsive signals from each
19 select terminal in accordance with said status means;

20   means for storing responsive signals from said
21 select terminals including digital data signals and
22 audio signals as selectively identified by said status
23 means; and

24   means for processing said digital signals to
25 isolate a subset of said callers.

1   8. A system according to claim 7 further
2 including consumable key test means to qualify callers
3 with respect to limited use.

1   9. A system according to claim 7 wherein said
2 means for processing includes interface processor means
3 for receiving said audio signals representative of
4 caller data and said digital signals for processing.

1   10. A system according to claim 7 further
2 including a plurality of audio response units for
3 interfacing said means for processing to said communica-
4 tion facility.

1   11.   A system according to claim 7 wherein
2 said communication facility provides automatic number
3 identification (ANI) signals and said status means
4 selectively identifies said automatic number identifica-
5 tion signals as digital control signals or digital data
6 signals.

1   12.   A voice-data control system for use with
2 a communication facility including remote terminals for
3 individual callers, wherein said remote terminals may
4 comprise a conventional telephone instrument including
5 voice communication means for providing audio response
6 signals and digital input means for providing digital
7 response signals, said control system comprising:
8   cue means for cueing select ones of said
9 terminals to prompt selective actuation of said voice
10 communication means and said digital input means to
11 provide responsive signals;
12   status means to selectively identify respon-
13 sive signals from each select terminal as digital
14 control signals, digital data signals or audio signals;
15   control means implementing a stored program to
16 control said cue means and said status means in accor-
17 dance with said program and said digital control signals
18 to prompt responsive signals from each select terminal
19 in accordance with said status means, said program
20 implementing an interface communication operation; and
21   means for selectively storing responsive
22 signals from said select terminals including digital
23 data signals and audio signals as selectively identified
24 by said status means to indicate identification data and
25 process data provided by said callers.

1 13. A system according to claim 12 wherein
2 said means for storing signals stores signals represen-
3 tative of billing information.

1 14. A system according to claim 13 wherein
2 said control means further implements inventory means to
3 account for items.

1 15. A system according to claim 14 wherein
2 said inventory means includes an inventory record of
3 said items.

1 16. A system according to claim 12 wherein
2 said communication facility provides automatic number
3 identification (ANI) signals and said status means
4 selectively identifies said automatic number identifica-
5 tion signals as digital control signals or digital data
6 signals.

1 17. A voice-data control system for use with
2 a communication facility including remote terminals for
3 individual callers, wherein said remote terminals may
4 comprise a conventional telephone instrument including
5 voice communication means for providing audio signals
6 and digital input means for providing digital response
7 signals, said control system comprising:
8   cue means for cueing select ones of said
9 terminals to prompt selective operation of said voice
10 communication means and said digital input means at said
11 terminals to provide responsive signals;
12   status means to selectively indicate respon-
13 sive signals from each select terminal as digital
14 control signals, digital data signals or audio signals;
15   control means for receiving said digital
16 control signals for actuating said cue means and said

17 status means to cue and identify responsive signals in
18 relation to the operation selectively.prompted by said
19 cue means; and
20   means for storing and retrieving individual
21 caller data, including said audio signals for reproduc-
22 ing audio caller voice data at a remote terminal.

1   18. A system according to claim 17 further
2   including a plurality of audio response units for
3   interfacing said means for processing to said communica-
4   tion facility.

1   19. A system according to claim 17 further
2   including consumable key test means to qualify callers
3   with respect to limited use.

1   20. A system according to claim 17 wherein
2   said communication facility provides automatic number
3   identification (ANI) signals and said status means
4   selectively identifies said automatic number identifica-
5   tion signals as digital control signals or digital data
6   signals.

1   21. A voice-data control system for use with
2   a communication facility including remote terminals for
3   individual callers, wherein said remote terminals may
4   comprise a conventional telephone instrument including
5   voice communication means for providing audio signals
6   and digital input means for providing digital response
7   signals, said control system comprising:
8   cue means for cueing select ones of said
9   terminals to prompt selective operation of said voice
10 communication means and said digital input means at said
11 terminals to provide responsive signals;

12   status means to selectively indicate respon-

13 sive signals from each select terminal as digital

14 control signals, digital data signals or audio signals;

15   test means for testing caller identification

16 data for approval;

17   control means for receiving said digital

18 control signals including automatic number identifi-

19 cation (ANI) signals to actuate, said test means, said

20 cue means and said status means in accordance with a

21 predetermined program; and

22   means for storing individual caller data as

23 received under control of said control means implement-

24 ing said program.

VOICE-DATA TELEPHONIC INTERFACE CONTROL SYSTEM

Abstract of the Disclosure

In an audio-digital telephone interface
system, selective operation prompts a caller with oral
instructions to provide: digital control signals,
digital data signals (numeric) or audio signals.
Inbound and outbound operations are involved and inbound
callers are qualified as by automatic number identifica-
tion (ANI) signals and consumable key operation. A data
cell is loaded in accordance with an operating program
and the resulting data packet is flagged depending on
the presence of audio signals. Data packets are
returned to storage, as for subsequent addressing to
call up, as to process or cue a caller. The illustra-
tive format receives and organizes order data for goods
or services or to isolate a subset or a sub-subset of
callers.

FIG. 1

FIG.2

FIG. 3

SET STATE "∅" — 80

STORE ITEMS (ORDER) — 86

SET STATE "1" — 88

NO ◇ KEY OK ? YES
77

79 — ADDRESS AND FETCH DATA CELL

NO ◇ LOCAL ACCOUNT ? YES — 90

SET STATE "∅" — 92

CUE CARD # — 94

STORE CARD # — 100

118 — SET STATE "3"

128 — ACTUATE LIVE INTERFACE

130 — ◇ DIGITAL DATA COMPLETE ? NO — 132 — SET STATE "2"

YES

NO ◇ LOCATE ADDRESS ? YES — SET STATE "1"
104 — 105

106 — ◇ VERIFY ADDRESS ? YES
NO

120 — ◇ MERE CHANGE ? YES
NO

RECORD COMPLETE — 108

134 — ◇ AUDIO DATA COMPLETE ? NO
YES

136 — TERMINATE

122 — SET STATE "2"

124 — CUE ADDRESS

126 — STORE ADDRESS

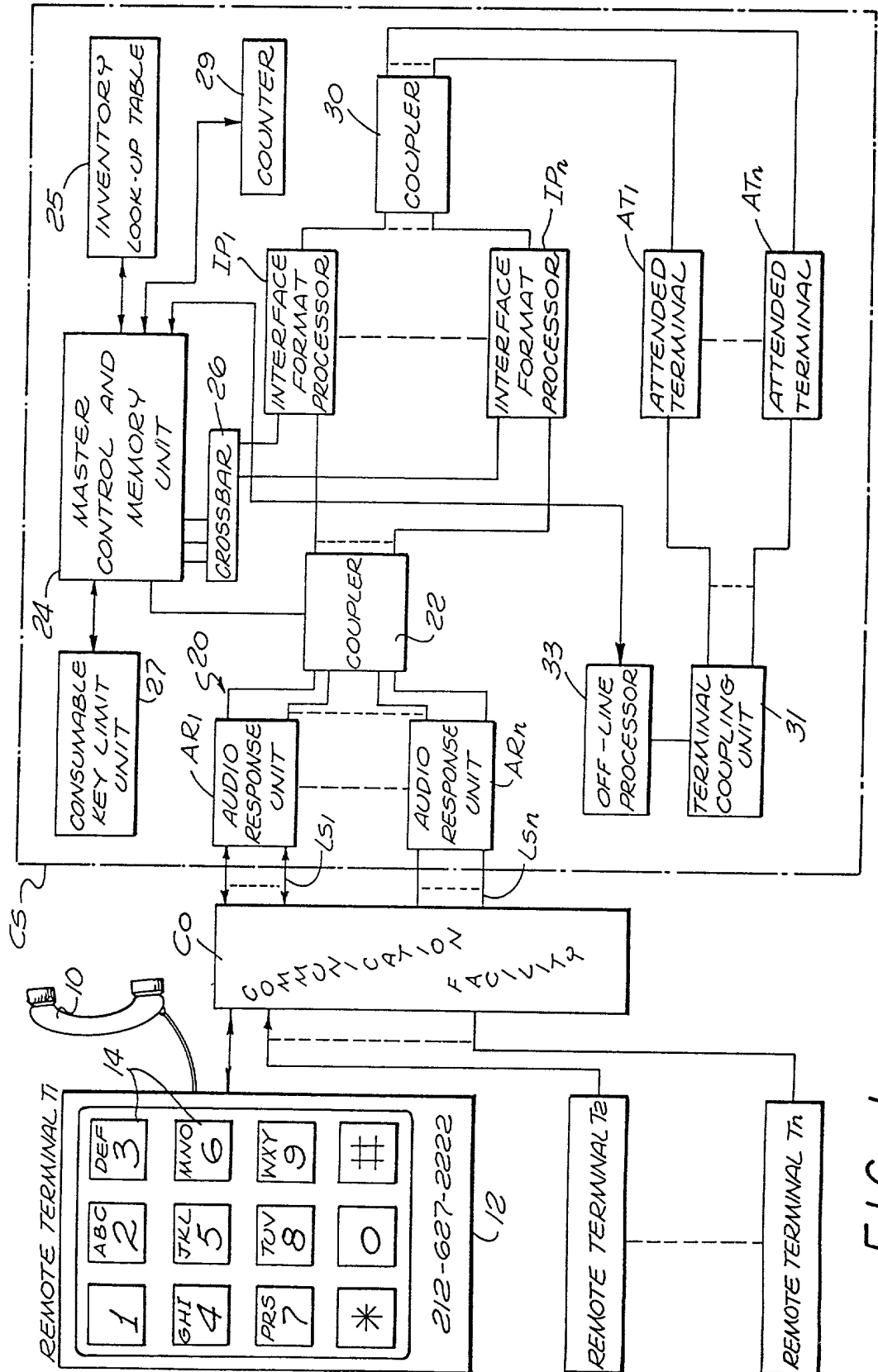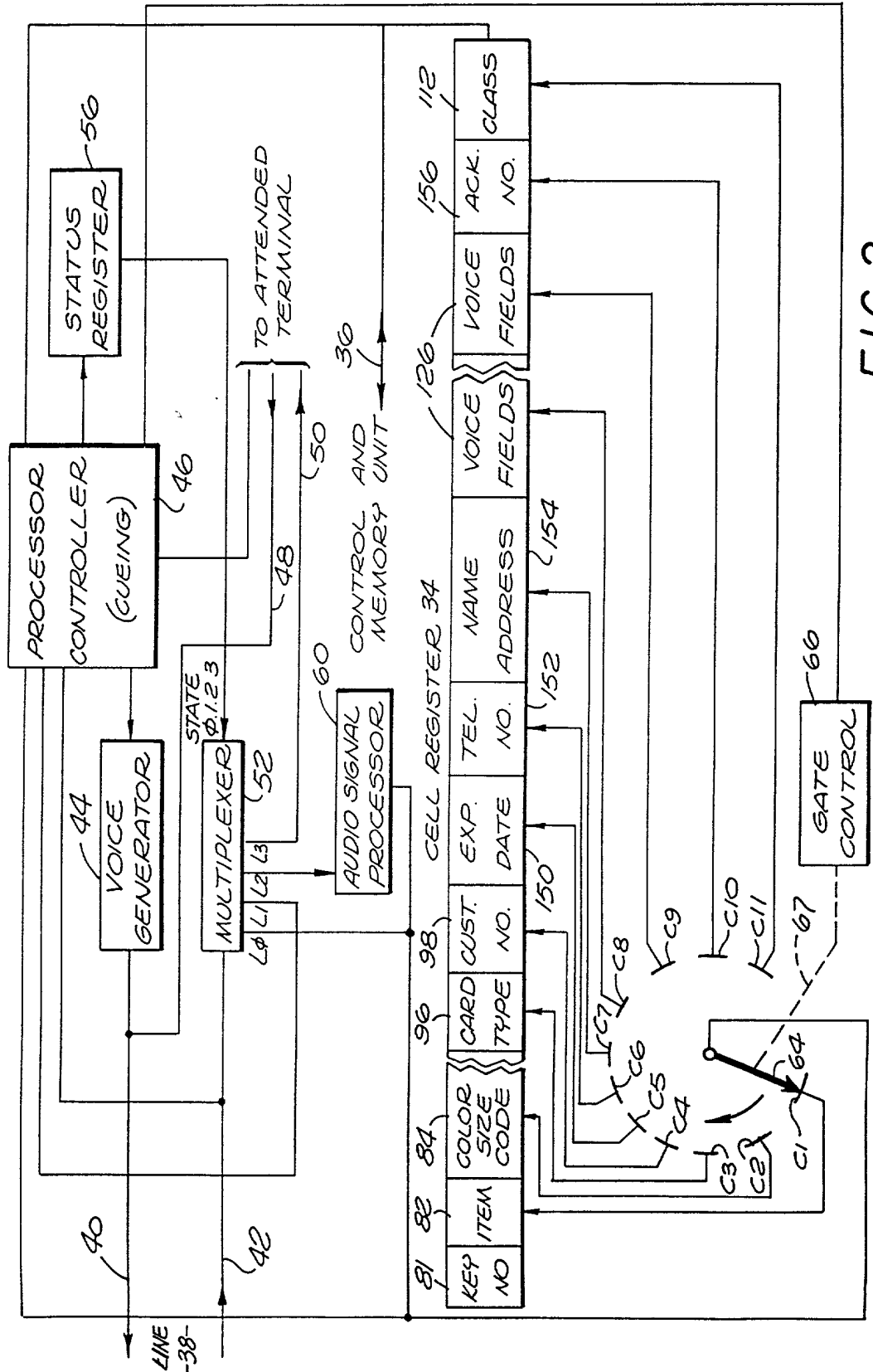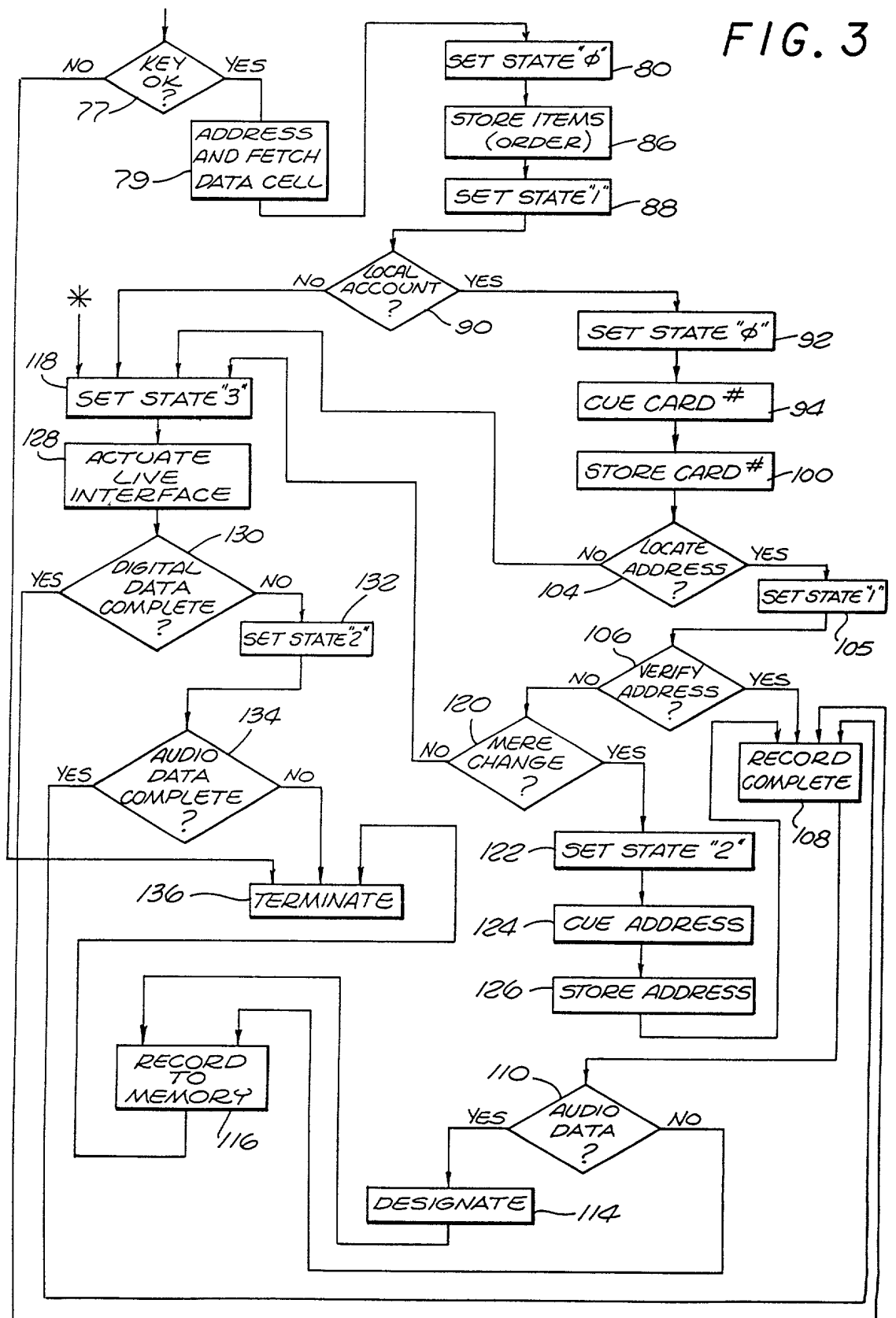RECORD TO MEMORY — 116

110 — ◇ AUDIO DATA ? NO
YES

DESIGNATE — 114

DECLARATION AND PETITION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled VOICE-DATA TELEPHONIC INTERFACE CONTROL SYSTEM, the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, § 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed: None.

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37,

Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

481,403	February 20, 1990	Pending
Application Serial No.	Filing Date	Status

312,792	February 21, 1989	Pending
Application Serial No.	Filing Date	Status

4,845,739	July 4, 1989	
Patent No.	Issued	

4,792,968	December 20, 1988	
Patent No.	Issued	

753,299	July 10, 1985	Abandoned
Application Serial No.	Filing Date	Status

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Wherefore I pray that Letters Patent be granted to me for the invention or discovery described and claimed in the foregoing specification and claims,

and I hereby subscribe my name to the foregoing specifi-
cation and claims, declaration and petition.

Full name of sole or first inventor: Ronald A. Katz

Inventor's signature: _____

Date: _3 -18-91_____

Residence: Los Angeles, California
Citizenship: U.S.A.
Post Office Address: 570 South Mapleton Drive
                     Los Angeles, California 90024

POWER OF ATTORNEY BY ASSIGNEE

Commissioner of Patents
    and Trademarks
Washington, D. C. 20231

Sir:

I, Aldo Tesi, Executive Vice President of
FIRST DATA RESOURCES INC., a corporation of the State of
Delaware and assignee of the entire right, title and
interest in the application for United States Letters
Patent entitled VOICE-DATA TELEPHONIC INTERFACE CONTROL
SYSTEM and executed March 18, 1991, with inventor Ronald
A. Katz, hereby appoint:

Attorney	Registration No.
Byard G. Nilsson	17,350
Billy A. Robbins	18,313
Lewis M. Dalgarn	20,415
Robert Berliner	20,121
M. John Carson	25,090
Harold E. Wurst	22,183
Michael S. Elkind	28,710
Gregory B. Wood	28,133
Robert A. Green	28,301
Mark E. Garscia	31,953
John P. Spitals	29,215
Jeffrey F. Craft	30,044
Georgann S. Grunebach	33,179
Reena Kuyper	33,830

all attorneys and/or registered patent agents of the law
firm of Nilsson, Robbins, Dalgarn, Berliner, Carson &
Wurst, Fifth Floor, 201 North Figueroa Street, Los
Angeles, California 90012-2628, as attorneys of said
corporation with full powers of substitution and
revocation to prosecute this appli-cation and to
transact all business in the United States Patent and
Trademark Office in connection therewith.

Please send all correspondence to:

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. Telephone (213) 977-1001

                    FIRST DATA RESOURCES INC.

              By: _____
                    Aldo Tesi
                    Executive Vice President

Attorney Docket No. 4646-114C3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Ronald A. Katz	)
		)
Serial No.:	08/306,456	) Examiner: S. Woo
		)
Filed:	September 14, 1994	) Art Unit: 2608
		)
For:	VOICE-DATA TELEPHONIC INTERFACE CONTROL SYSTEM	))
		)
New Docket No.:	6646-114N5	)
(Previous Docket No.: 4646-114N5)		)

POWER OF ATTORNEY BY ASSIGNEE

Commissioner of Patents
    and Trademarks
Washington, D. C. 20231

Sir:

   I, Ronald A. Katz, am the President of A2D Corporation, a California corporation, which corporation is a general partner of A2D, L.P., a California limited partnership, which limited partnership is a general partner of RONALD A. KATZ TECHNOLOGY LICENSING, L.P., a California limited partnership and assignee of the entire right, title and interest in the application for United States Letters Patent entitled VOICE-DATA TELEPHONIC INTERFACE CONTROL SYSTEM, and am authorized to sign on its behalf.

   The Assignment of this application to RONALD A. KATZ TECHNOLOGY LICENSING, L.P., has been submitted to the Assignment Branch and was received on September 26, 1994.

   I have reviewed the foregoing document and hereby certify that, to the best of my knowledge and belief, title to the

1

subject matter of this patent application is in RONALD A. KATZ
TECHNOLOGY LICENSING, L.P.

I hereby appoint: Byard G. Nilsson, Reg. No. 17,350, Harold
E. Wurst, Reg. No. 22,183, Robert A. Green, Reg. No. 28,301, Anne
Wang, Reg. No. 36,045, all members of the bar of one or more
states, Reena Kuyper, Patent Agent, Reg. No. 33,830, all of the
law firm of Nilsson, Wurst & Green, 707 Wilshire Blvd., 32nd
Floor, Los Angeles, California 90017; and Thomas J. Lannon,
Registration No. 18,417, 105 Whittier St., NW, Washington, DC
20012, to prosecute this application and to transact all business
in the United States Patent and Trademark Office in connection
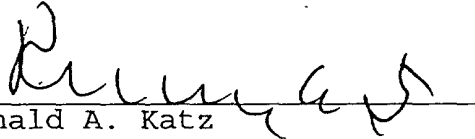therewith.

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RONALD A. KATZ TECHNOLOGY
LICENSING, L.P., a California limited
partnership,

By: A2D, L.P., a California limited
partnership, its general partner

By: A2D Corporation, a California
corporation, its general partner

By: _____
Ronald A. Katz
President,
A2D Corporation

Attorney Docket No. 6646-114N5
6646\114N5.poa

2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)	Group Art Unit: 2743
)	
Ronald A. Katz)	Examiner: S. Woo
)	
Serial No. 08/306,456)	
)	
Filed: September 14, 1994)	
)	
For: VOICE-DATA TELEPHONIC INTERFACE)	
CONTROL SYSTEM)	
)	
Dkt. No.: 228/046)	
(previous dkt. nos. 9002-1B672US7 and 6646-114N5))	

REVOCATION AND GRANT OF POWER OF ATTORNEY

Assistant Commissioner for Patents
Washington, D.C.   20231

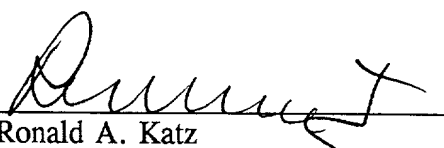Sir:

All powers of attorney granted before are revoked.

I, Ronald A. Katz, am the president of A2D Corporation, a California corporation,

which corporation is a general partner of A2D, L.P. a California limited partnership, which

limited partnership is a general partner of RONALD A. KATZ TECHNOLOGY

LICENSING, L.P., a California limited partnership, the assignee owning all of the interest

in this application, and by virtue of the foregoing relationships I execute this document on its

behalf to appoint as its attorneys and representatives, with full powers of substitution and

revocation, to prosecute this application and to transact all business in the Patent and

Trademark Office connected with it, David B. Murphy, Reg. No. 31,125, and Reena

Kuyper, Reg. No. 33,830 (registered patent agent); and

Roland N. Smoot, Reg. No. 18,718; Conrad R. Solum, Jr., Reg. No. 20,467; James W. Geriak, Reg. No. 20,233; Robert M. Taylor, Jr., Reg. No. 19,848; Samuel B. Stone, Reg. No. 19,297; Douglas E. Olson, Reg. No. 22,798; Robert E. Lyon, Reg. No. 24,171; Robert C. Weiss, Reg. No. 24,939; Richard E. Lyon, Jr., Reg. No. 26,300; John D. McConaghy, Reg. No. 26,773; William C. Steffin, Reg. No. 26,811; Coe A. Bloomberg, Reg. No. 26,605; J. Donald McCarthy, Reg. No. 25,119; John M. Benassi, Reg. No. 27,483; James H. Shalek, Reg. No. 29,749; Allan W. Jansen, Reg. No. 29,395; Robert W. Dickerson, Reg. No. 29,914; Roy L. Anderson, Reg. No. 30,240; James C. Brooks, Reg. No. 29,898; Jeffrey M. Olson, Reg No. 30,790; Steven D. Hemminger, Reg. No. 30,755; Jerrold B. Reilly, Reg. No. 32,293; Paul H. Meier, Reg. No. 32,274; John A. Rafter, Jr., Reg. No. 31,653; Kenneth H. Ohriner, Reg. No. 31,646; Mary S. Consalvi, Reg. No. 32,212; Lois M. Kwasigroch, Reg. No. 35,579; Robert C. Laurenson, Reg. No. 34,206; Carol A. Schneider, Reg. No. 34,923; Hope E. Melville, Reg. No. 34,874; Michael J. Wise, Reg. No. 34,047; and Richard J. Warburg, Reg. No. 32,327;

all of LYON & LYON, First Interstate World Center, 633 West Fifth Street, Suite 4700,

Los Angeles, California 90071-2066, telephone: (213) 489-1600.

The Assignment of this application to RONALD A. KATZ TECHNOLOGY

LICENSING, L.P., was recorded on September 26, 1994, on Reel 7133, Frames 95-100.

Also, I have reviewed the assignment documents and hereby certify that, to the best

of my knowledge and belief, title to the subject matter of this application is with RONALD

A. KATZ TECHNOLOGY LICENSING, L.P.

Date: ___11/6/98___ By:_____

Ronald A. Katz
President
A2D Corporation